The new IRB 6400

Now you get even more

ABB Flexible Automation
The demands of modern industry require high production rates, reduced lead times, smaller inventories and lower costs. And these demands are continuously growing.

This means short workcycle times, rapid change-overs, consistently high process quality and reliable process-optimised equipment. These were the driving forces in the design criteria for the IRB 6000 series back in 1990 and also the key issues behind the new IRB 6400. Of 70,000 installed ABB robots, more than 20,000 are from the IRB 6400 series. We found no need to invent the wheel over again – but rather a reason to continue the success and give you even more.

Presenting the new IRB 6400, offering more performance, adaptability and reliability.

More performance for higher production rates and top quality parts

The new IRB 6400 series is 20% faster than before – with low energy consumption. The advantage lies in the balanced construction, optimised drive-trains and the advanced dynamic model based servo control.

QuickMove™ functions and automatic load and inertia identification ensure the highest acceleration and speed over the entire workcycle.

TrueMove™ functions offer accurate paths, independent of speed. The repeatability has been further improved from 0.15 mm to an outstanding 0.1 mm with help of the very rigid design. Together with new functionality, this results in the highest production rates of high quality parts that the industry can offer.

More adaptability to meet your specific needs

The new mechanical design with much smaller interference radius allows for more compact installations. The integrated process media is readily exchanged and a 2.5 meter overarm is changed to a 3.0 meter arm in less than 30 minutes. The robot can be calibrated one axis at a time, if this is more convenient. Extensive, standard communication possibilities include I/Os, serial channels, Interbus-S, Profibus, CAN/DeviceNet and Ethernet.
More reliability for outstanding availability and safety

The new IRB 6400 is a robust, all-steel construction with high material strength. The arms are mechanically balanced and equipped with double bearings.

Advanced motion control together with collision detection reduce the collision force to one third, thus reducing the risk of tool and workpiece damage. Process cabling is integrated through the robot base.

Extensive recovery actions under pre-defined conditions and operator safety features also ensure that the risk for damage or injury is minimised.

The MTBF (Mean Time Between Failure) has been steadily increased since the introduction of the IRB 6000 series in 1991. The new IRB 6400 has been designed for an MTBF of more than 50,000 hours.
Focused applications

The IRB 6400 series is developed for focused industries and applications in order to obtain maximum performance, adaptability and reliability.

Spot welding
The IRB 6400 robot family is optimised for spot welding applications. The compact body has a very small interference radius and the welding cabling is well protected and easily replaced within 15 minutes. The position switches for axis 1, 2 and 3 are accessible for easy adjustment of the arm motion limits. Alternative load/reach capability is readily obtained through fast change of the upper arm (less than 30 minutes). High production rates are obtained through excellent speed and accuracy and a long operating life through the rugged construction.

Machine and press tending
Monotonous and heavy lifts are reduced at competitive costs. The IRB 6400 is easily integrated in the production cell thanks to its compact interference radius in combination with long reach. Great flexibility and high MTBF guarantee that expensive process machines are utilised as many hours as possible.

Material handling
In material handling, the IRB 6400 offers high production rates, reduced lead times and smaller inventories giving faster turnover of capital and materials. This is thanks to its high speeds, compact turning radius and long reach with high load capability.

Palletizing/packaging
The IRB 6400 is easily fit into packaging applications, thanks to its large working range. The fast axis movement allow high speed palletizing. The compact interference radius further simplifies flexible installations in compact areas.
Assembly
The high accuracy together with the use of a robot vision system is ideal for assembly of large objects such as windscreens, wheels, engine parts, etc. Variants in load and reach capability give a wide choice for the application. The workcycle times can be adjusted for optimum production, without reducing the accuracy of the programmed path.

Grinding/Polishing
The load/reach capability and the soft-servo functionality together with the high accuracy make the robot series ideal for grinding and polishing of large objects. The robots are robust and are available with increased protection against aggressive environments. The excellent robot performance and the programming adaptability allow for high production rates with high product quality.

Foundry applications
The robots play an important role in modern foundries, offering high accuracy and the flexibility needed. The robust design and special foundry protection, with IP 67 wrist protection as standard, make the robot an excellent work horse in dirty and hostile environments. Speed and accuracy are obtained also for heavy parts thanks to a handling capacity of up to 200 kg.
BaseWare Operating System

The IRB 6400 robot series is supplied with BaseWare Operating System software. A highly configurable system featuring TrueMove and QuickMove functions delivering superior performance in your applications.

A range of PC-tools for user-adapted functionality

ABB offers a range of tools for training, programming, monitoring and simulation. Using QuickTeach™ you can learn how to program and operate an ABB robot using an emulated control pendant. ProgramMaker™ is a collection of powerful PC applications which allows you to develop and maintain robot programs and configuration files off-line while taking full advantage of the Windows user environment.

Effective monitoring and troubleshooting are crucial. FactoryWare™ enables you to create an on-line Windows-based graphical operator interface of the installation on your PC.

Using our simulation solutions, you can be sure that your investment is optimised -- before you actually invest. RobotStudio™ allows fast and easy creation of robot programs without requiring access to the robot itself, simulating robot movements and cycle times. Using digital 3D replicas of the robots and their environment, programming and fine tuning of a robot station can be carried out quickly and efficiently off-line on a PC.

Advanced application-dedicated software

Advanced functionality is offered through application-dedicated ProcessWare™ software packages. SpotWare™ for spot welding comprises a large number of dedicated spot welding functions. It is a simple yet powerful product that allows you to handle both positioning of the robot, process control and monitoring in the same instruction. Cycle times are shortened through closing of the welding gun in advance and through starting the movement of the robot immediately after a spot weld is completed.

I/O signals, timing sequences and weld error actions are easily configured. Up to four stationary welding guns can be controlled from one robot controller.

Example of functionality

- Adaptation to different welding guns
- Adaptation to different weld timers
- Collision detection
- Soft servo on all axes
- Automatic load identification for optimum acceleration
- Control/monitoring of the robot motion within defined “world zones”
- Multi tasking
- Conveyor tracking
- Error recovery routines

Software tools and application-dedicated software

Programming with the robot language RAPID results in easy-to-read displays with user-adapted texts.
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